

REMARKS

Due to the numerous grammatical and idiomatic errors contained in the originally filed abstract and specification, Applicants are enclosing herewith a substitute abstract and specification including "clean" and "marked-up" copies. The undersigned hereby certifies, to the best of his knowledge and belief, that the enclosed substitute abstract and specification contain no new matter.

In order to expedite the prosecution of the present application, Claims 1-12, 14 and 15 have been canceled and replaced by newly presented Claims 16-22 which more particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Newly presented Claim 16 contains the subject matter of canceled Claims 1-6. Newly presented Claim 17 contains the subject matter of canceled Claims 7-12. Newly presented Claim 18 contains the subject matter of canceled Claims 14 and 15. No new matter has been added.

Claims 14 and 15 have been rejected under 35 USC 112, second paragraph, as being indefinite. It is respectfully submitted that the newly presented method claims are cured of all formal defects.

Claims 1, 2 and 4-6 have been rejected under 35 USC 102(b) as being anticipated by BASF or Rametsteiner or Stastny et al or Shinetsu. Claims 7-9, 11, 12 and 14 have been rejected under 35 USC 102(b) as being anticipated by Stastny or Rametsteiner. Claims 7, 8 and 11-13 have been rejected under 35 USC 102(b) as being anticipated by or, in the alternative, under 35 USC 103(a) as being obvious over BASF or Shinetsu. Claims 3 and 9 have been rejected under 35 USC 103(a) as being unpatentable over BASF or Rametsteiner or Stastny or Shinetsu alone or in combination with Tojo et al. Claim 15 has been rejected under 35 USC 103(a) as being unpatentable over Stastny or Rametsteiner in combination with admitted prior art or Matsumoto et al. Applicants

respectfully traverse these grounds of rejection and urge reconsideration in light of the following comments.

The presently claimed invention is directed to a cellular rubber material prepared by heating a rubber composition comprising (A) 100 parts by mass of a polymer which contains 30 to 100% by mass of a chlorinated polyethylene having a chlorine content of 10 to 35% by mass and Mooney viscosity at 100° ML₍₁₊₄₎ of 30 to 100, (B) 1 to 30 parts by mass of an organic blowing agent having a decomposition temperature T_1 of 100 to 170°C and (C) 0.1 to 10 parts by mass of an organic peroxide having a one minute-half life temperature T_2 of 100 to 170°C, wherein $-20^{\circ}\text{C} \leq (T_1 - T_2) \leq +30^{\circ}\text{C}$.

The present invention is also directed to a method of preparing the above-described cellular rubber material which comprises the steps of extrusion-molding the above-described rubber composition into a predetermined shape, heating, cross-linking and foaming the rubber composition.

As discussed in the present specification, the present invention provides a cellular rubber composition which can be used in various applications including being used as a cosmetic sponge puff. Traditional sponge puffs have had problems in that their manufacture involved an excessive number of steps, including post-handling, and were very difficult to composite mold. Additionally, there could be problems such as a considerable loss of material caused by the stamping of a rubber sheet taking out the mold to the shape similar to the product and low productivity due to the necessity of batch production.

In order to get the superior properties associated with the presently claimed cellular rubber composition, it is necessary that the claimed requirements are met. That is, the rubber composition must contain (A) 100 parts by mass of a polymer which contains 30 to 100% by mass of a chlorinated polyethylene having a chlorine content of 10 to 35% by mass and a Mooney viscosity at 100° ML₍₁₊₄₎ of 30 to 100, (B) 1 to 30 parts by mass of an organic blowing agent having a

decomposition temperature T_1 of 100 to 170°C, and (C) 0.1 to 10 parts by mass of an organic peroxide having a one minute-half life temperature T_2 of 100 to 170°C, wherein $-20^\circ\text{C} \leq (T_1 - T_2) \leq +30^\circ\text{C}$. It is respectfully submitted that the prior art cited by the Examiner does not disclose the presently claimed invention.

BASF discloses the manufacture of flexible thermoplastic foams by heating a mixture of an ethylene polymer and/or a chlorinated polyethylene, an organic peroxide as a cross-linking agent and an expanding agent. This reference discloses the use of molding to produce the flexible thermoplastic foam and not extrusion. Additionally, this reference has no discussion with respect to the Mooney viscosity of the chlorinated polyethylene and the one minute-half life temperature of the organic peroxide cross-linking agent. As such, it is respectfully submitted that the presently claimed invention is patentably distinguishable over this reference.

The Rametsteiner reference discloses the manufacture of bodies of foam plastic material in which a polymeric synthetic resin base material is mixed with a cross-linking agent, a foaming agent and at least one further additive. The presently claimed invention is distinguishable over this reference in that the Rametsteiner reference requires that the chlorinated polyethylene have a chlorine content containing chlorine in an amount of from 35 to 45% by weight, preferably at least 36% by weight, and this reference has no disclosure with respect to the Mooney viscosity of the chlorinated polyethylene resin, the decomposition temperature of the organic blowing agent, the one minute-half life temperature of the organic peroxide and the claimed relationship between the decomposition temperature of the organic blowing agent and the one minute-half life temperature of the organic peroxide blowing agent. As such, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over this reference.

The Stastny et al reference discloses the production of chlorinated polyethylene foams by heating a mixture of chlorinated polyethylene, a cross-linking agent and an expanding agent. Like the previously discussed references, this reference has no disclosure with respect to the Mooney viscosity of the chlorinated polyethylene resin, the decomposition temperature of the organic blowing agent, the one minute-half life temperature the cross-linking agent and the claimed relationship between the decomposition temperature of the organic blowing agent and the one minute-half life temperature of the organic peroxide cross-linking agent. As such, it is respectfully submitted that the presently claimed invention is patentably distinguished over this reference.

The Shinetsu reference discloses a puff comprising a composition in which 100 parts by weight of a chlorinated polyethylene is mixed with a stabilizer in an amount of 0.5 to 50 parts by weight, an organic foaming agent in an amount of 0.5 to 20 parts by weight and an organic peroxide in an amount of 0.5 to 10 parts by weight. This reference has no disclosure with respect to the chlorine content of the chlorinated polyethylene and the Mooney viscosity of the chlorinated polyethylene. As such, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over this reference.

The Tojo et al reference discloses foamed vulcanized rubber articles which are prepared by vulcanizing a vulcanizable and foamable molded product made of a chlorinated ethylene. Blowing and cross-linking agents are used in the formation of the foamed vulcanized rubber article. However, this reference has no disclosure with respect to the decomposition temperature of the organic blowing agent, the one minute-half life temperature of the organic peroxide cross-linking agent and the claimed relationship between the decomposition temperature of the organic blowing agent and the one minute-half life temperature of the organic peroxide cross-linking agent. As such, Tojo et al in combination with

any or all of the previously discussed references does not show the presently claimed invention.

The Matsumoto et al reference discloses an open-cell foam of a cross-linked polyolefin which comprises a blowing agent and a cross-linking agent. There is no disclosure in this reference of the polyolefin being a chlorinated polyolefin so there clearly is no disclosure regarding a chlorine content as required by the present invention, the Mooney viscosity of the chlorinated polyethylene, the decomposition temperature of the blowing agent, the one minute-half life temperature of the cross-linking agent and the required relationship between the decomposition temperature of the organic blowing agent and the one minute-half life temperature of the organic peroxide cross-linking agent. As such, Matsumoto et al in combination with any or all of the previously discussed references does not even present a showing of prima facie obviousness under 35 USC 103 with respect to the presently claimed invention.

Although the references cited by the Examiner do not present a showing of prima facie obviousness under 35 USC 103(a) with respect to the presently claimed invention, Applicants respectfully submit that objective evidence is of record in the present application which is more than sufficient to rebut any proper showing of prima facie obviousness. On pages 12-14 of the present specification, Examples and Comparative Examples are presented in which the Comparative Examples disclose sponge puffs prepared outside of the scope of the present claims. As can be seen by the results contained in Tables 3 and 4 of the present specification, the sponge puffs made according to the Comparative Examples had inferior properties. This is clearly unexpected in light of the disclosure of the references cited by the Examiner and establishes the patentability of the presently claimed invention thereover.

The Examiner is respectfully requested to reconsider the present application and to pass it to issue.

Respectfully submitted,


Terryence F. Chapman

TFC/smd

FLYNN, THIEL, BOUTELL	Dale H. Thiel	Reg. No. 24 323
& TANIS, P.C.	David G. Boutell	Reg. No. 25 072
2026 Rambling Road	Ronald J. Tanis	Reg. No. 22 724
Kalamazoo, MI 49008-1631	Terryence F. Chapman	Reg. No. 32 549
Phone: (269) 381-1156	Mark L. Maki	Reg. No. 36 589
Fax: (269) 381-5465	Liane L. Churney	Reg. No. 40 694
	Brian R. Tumm	Reg. No. 36 328
	Steven R. Thiel	Reg. No. 53 685
	Donald J. Wallace	Reg. No. 43 977
	Kevin L. Pontius	Reg. No. 37 512
	Sidney B. Williams, Jr.	Reg. No. 24 949

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